

# THE EFFECT OF STRETCHING EXERCISE ON PRIMARY DYSMENORRHEA IN ADULT GIRLS

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## ABSTRACT

**Background:** Primary dysmenorrhea is a difficult menstrual flow in the absence of any pelvic pathology where pain is spasmodic in character and felt mainly in the lower abdomen. Women that participated in sports experienced fewer occurrences of symptoms of dysmenorrhea.

**Aims & Objective:** To assess the effect of stretching exercise on primary dysmenorrhea in adult girls.

**Materials and Methods:** The study was conducted at SBB College of physiotherapy. A convenience sample was taken consisting of 30 participants, 15 in each group. Group A received Stretching Exercises. Participants completed an active stretching exercise program for 4 weeks (6 days per week, 2 times per day) at home. They were asked to perform 9 stretching exercises. Group B was in control group. All Participants were examined for pain intensity VAS (10-point scale). Verbal Multidimensional Scoring System for Assessment of Dysmenorrhea Severity (VMS) Level of significance was kept at 5%.

**Results:** The results of Groups A and B were analyzed by Wilcoxon Signed Rank Test. In group A-VAS showed significant improvement in pain. Pain intensity was reduced from 6 to 3.80 (difference in mean  $2.2 \pm 0.16$ ,  $W = 120$ ,  $p = 0.001$ ). VMS also showed significant improvement in pain. VMS was reduced from 2 to 1 (difference in median 1,  $W = 66$ ,  $p = 0.002$ ). In group B, there was no significant improvement in pain. VAS score reduced from 6.20 to 6.10. Difference in mean VAS ( $0.10 \pm 0.30$ ,  $W = 36$ ,  $p = 0.5$ ). There was no difference in mean VMS at the end of 4 weeks. Comparison of Group A and Group B was done with Mann Whitney U Test. There was a significant difference in improvement in VAS between Groups A and B ( $2.30 \pm 0.21$ ,  $U = 31.0$ ,  $p < 0.01$ ). There was a significant difference in improvement in VMS between Groups A and B ( $U = 12.0$ ,  $p < 0.01$ ).

**Conclusion:** Stretching exercises are effective in reducing pain in young females with primary dysmenorrhea.

**Key Words:** Exercise; Stretching; Dysmenorrheal Pain; Adult Girls

## Introduction

Dysmenorrhea is chronic, cyclical pelvic pain associated with menstruation. Typically it is characterized by cramping lower abdominal pain occurring just before and/or during menstruation, usually starting soon after menarche once regular ovulation is established. Yet despite this substantial effect on their quality of life and general wellbeing, few women with dysmenorrhea seek treatment, as they believe it will not help.<sup>[1]</sup> Dysmenorrhea is associated with restriction of activity and absence from school or work.<sup>[2]</sup> Physical exercise has been suggested as a non-medical approach for the management of symptoms. Despite the widespread belief that exercise can reduce dysmenorrhea, evidence-based studies are limited. Several observational studies reported that physical exercise was associated with a reduced prevalence of dysmenorrhea, although numerous other studies found no significant association between outcomes. Evidence from controlled trials suggests that exercise can reduce dysmenorrhea and associated symptoms<sup>[3]</sup>, hence the present study was done.

## Materials and Methods

A quasi experimental study was conducted at SBB College

of physiotherapy Ahmedabad and convenience sampling was used. The study consisted of 30 participants, 15 in each group. Females diagnosed with primary dysmenorrhea by the gynecology department of V.S. General Hospital, in the age group of 18-25 years were included. They should have had a regular menstrual cycle and those who were willing to participate were included. Participants with regular exercise history, any traumatic injury, and married girls were excluded. Outcome measures used were Visual analogue scale (VAS) and Verbal Multidimensional Scoring System for Assessment of Dysmenorrhea Severity (VMS).<sup>[4]</sup> Verbal Multidimensional Scoring System (VMS), grading system ranges from 0-3 grade for evaluating the working ability, the systemic symptoms and whether analgesia is required or not<sup>[5]</sup> (Table 1).

Participants were explained the procedure and purpose of the study & written informed consent was taken in an understandable language. After initial examination the participants were assigned randomly into two groups, Group A: Stretching exercise group, Group B: Control group. Severity of the condition was measured by Visual analogue scale (VAS), Verbal Multidimensional Scoring System for Assessment of dysmenorrhea severity (VMS)

pre-treatment and post treatment. Group A Participants completed an active stretching exercise program for 4 weeks (6 days per week, 2 times per day) at home. They were asked to perform 9 stretching exercises. These were: Forward bending from hip joints, Backward trunk bending, Heel raise (Bilateral), Half squatting, Trunk side flexion (Bilateral), Abdominal contraction, Knee to chest (Bilateral), Hamstrings stretching (Bilateral) and Calf stretching (Bilateral). Group B was control group and were asked to be in waiting period for 4 weeks. Level of significance was kept at 5%.

**Table-1: Verbal Multidimensional Scoring System (VMS)**

Grade	Working Ability	Systemic Symptoms	Analgesia
<b>Grade 0:</b> Menstruation is not painful and daily activity is unaffected	Unaffected	None	Not Required
<b>Grade 1:</b> Menstruation is painful but seldom inhibits the woman's normal activity. Analgesics are seldom required. Mild pain	Rarely Affected	None	Rarely Required
<b>Grade 2:</b> Daily activity affected. Analgesics required and give relief so that absence from work or school is unusual. Moderate pain	Moderately Affected	Few	Moderately Required
<b>Grade 3:</b> Activity clearly inhibited. Poor effect of analgesics. Vegetative symptoms, e.g. headache, tiredness, nausea, vomiting and diarrhea. Severe pain	Clearly Affected	Apparent	Poor Effect

## Results

All data was analyzed using SPSS version 16. Wilcoxon test was applied for group A and B. Comparison of Group A and Group B was done using Mann Whitney U Test. Table 2 shows difference in VAS score in group A&B. Table 3 shows difference in VMS score in groups A&B. The difference in mean visual analog scale score (VAS) and Verbal Multidimensional Scoring System for assessment of dysmenorrhea severity (VMS) between the groups was significant (U=31.0, p<0.001) and (U=12.0, p<0.001) respectively as shown in table 4.

**Table-2: Comparison of VAS in Group A & Group B**

	Pre-VAS Mean (SD)	Post-VAS Mean (SD)	W Value	p Value
<b>Group A</b>	6 (1.30)	3.80 (1.14)	120	0.001
<b>Group B</b>	6.2 0(1.65)	6.10 (1.35)	36	0.5

**Table-3: Comparison of VMS in Group A & Group B**

	Pre-VMS Median	Post-VMS Median	W Value	p Value
<b>Group A</b>	2	1	66	0.002
<b>Group B</b>	2	2	00	1.00

**Table-4: Comparison of difference in VAS & VMS scores between Groups A & B**

	Mean (SD) VAS	Median VMS
<b>GROUP A</b>	2.2(0.16)	1
<b>GROUP B</b>	0.10(0.30)	0
<b>U value</b>	31	12
<b>p value</b>	0.001	0.001

## Discussion

The present study was conducted to see the effect of stretching exercises on primary dysmenorrhea. In present study, pain has reduced in primary dysmenorrhea more in stretching exercise group than in control group.

The findings are similar to those of various authors. Shahnaz Shahr-jerdy et al (2012)<sup>[6]</sup> concluded that stretching exercises are effective in reducing pain intensity, pain duration, and the amount of painkillers used by girls with primary dysmenorrhea. Abbaspour et al (2006)<sup>[7]</sup> conducted a study to see the effect of exercise on primary dysmenorrhea and concluded that the exercise can decrease the duration and severity of dysmenorrhea and also use of the sedative tablets in high school girls. Onur et al (2012)<sup>[8]</sup> studied the impact of home-based exercise on quality of life of women with primary dysmenorrhea and concluded that there is evidence that exercise has a positive effect in the treatment of dysmenorrhea.

This improvement may be due to the increase in the blood flow and metabolism of the uterus during exercise which may be effective in the reduction of dysmenorrheal symptoms. A study done by Izzo and Labriola (1991)<sup>[9]</sup> has shown that improved metabolism is a factor in the reduction of symptoms. It is also suggested that increased menstrual pain by uterine muscle contraction is derived from a nervous system that is innervated by the sympathetic nerve hence; stress through hyperactivity of sympathetic nerve system via the increase contractibility of uterine muscles may lead to menstruation symptoms. A study done by Dawood MY (2006)<sup>[10]</sup> has shown that therapeutic exercise can increase the secretion of endorphins from the brain, and these materials in turn raise the pain threshold of the body. Daley AJ (2009)<sup>[11]</sup> believed that contracted ligamentous bands in the abdominal region were the causative factor for physical compression of nerve pathways and their irritation, so the proposed series of stretching exercise was considered very effective.

Limitations of the study were that participants were not followed up for a longer period of time. Randomization was not done. Home exercise protocol was not supervised.

## Conclusion

Stretching Exercises are effective in reducing pain in young females with primary dysmenorrhea.

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